



ITG TRUNK 2.1

System Release Notes (S/W Release 25C)

Issue 1.6

1 Document Version History

Version 1.0	Describe release 2.1.24c+	Tony McCormack 21 st June 2001
Version 1.1	Describe release 2.1.24j	Tony McCormack 3 rd September 2001
Version 1.2	Describe release 2.1.24k	Tony McCormack 7 th September 2001
Version 1.3	Describe release 2.1.24n	Tony McCormack 2 nd November 2001
Version 1.4	Describe future enhancements for next BETA up-issue	Sean Burke 5 th Novemebr 2001
Version 1.5	Describe release 2.32.25B (BETA up-issue 2)	Sean Burke 21 st January 2002
Version 1.6	Describe release 2.32.25C (BETA up-issue 3)	Sean Burke 7 th February 2002

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2 Introduction

2.1 Purpose of Document

The purpose of this document is to detail the nature and content of the latest ITG Trunk 2.1 Card software release. It includes details of new feature content (if any), bug fixes and compatibility with existing software and hardware releases. This document also includes relevant information regarding other components that comprise ITG Trunk 2.1.

2.2 Software and Hardware Compatibility

The table below defines the release/version of each of the system components compatible with Release 2.32. 25C.

Component	Current Rls/Version	Ordering Information
ITG Trunk 2.1 Card h/w (minimum)	NTVQ01AA Rls 8	Eng: NT0961BA
Firmware Version (minimum)	Release 6.0, Version 4.5	-
BootROM Version (minimum)	3.4	
EPLD Version (minimum)	2.0	
Pre-programmed QSIG D-CHIP PCMCIA Card	02	Eng: NTWE07AA
D-CHIP PCMCIA Card Loadware Module (Binary version)	02 (3.1)	Eng: NTWE06AA CPC: A0794154
X11 System Software (minimum)	25.15	

N.B. 2.32.25B is not compatible with H/W releases prior to Release 8 and EPLD releases prior to Release 2.0. It should not be loaded on cards that do not meet the above criteria. The release of the EPLD can be read from the boot-up sequence while the release of the board is read from the faceplate. This incompatibility is due to the UART supporting modem control signals activated in 2.1.24n.

N.B. 2.32.25C is not compatible with the Firmware Release prior to MC Firmware 6.0. This is as a result of the fix detailed in MP17123 where the incorrect companding law was received from the switch. The firmware version can be read from the first two lines of the reboot script or by calling *firmwareVersionsShow* from the Command Line Interface.

Cards loaded with MC Firmware 6.0 cannot use any application load prior to 2.32.25C.

The EPLD version is printed along with the firmware version at the start of the card boot-up sequence. A sample is displayed below.

MC Firmware Rls 6.0

8051XA Firmware Version 4.5 5th February 2002

(C) Nortel Inc. 2001

EPLD Version: 2.0

32K External RAM detected

8K DPRAM detected

All FPGAs are configured

No dongle detected

2.2.1 OTM

OTM Version 1.1 should be used in conjunction with this product. Earlier versions of OTM or MAT do not allow echo cancellation tail lengths to be configured that are greater than 32ms. When ITG Trunk 2.1 is used with versions of OTM prior to 1.1, a default value of 128ms tail-length is assumed unless the user enters the command, *ectailNonDefault*. When this is entered and OTM 1.0 is used, the value specified in the card properties is used by ITG Trunk 2.1 (maximum value 32). With OTM 1.1, the tail-length value specified in the card properties is used (maximum value 128). To turn off this feature enter the command *ectailDefault*.

2.3 Interworking with Earlier Software Versions

2.3.1 Mixed ITG Trunk 2.1 Software Versions within a single Multi-Card Node

ITG Trunk does not support mixed S/W load versions within a single multi-card node. For this reason all cards in a multi-card node should be upgraded to a common S/W release simultaneously (2.xx.24/25 in cases where Pentium/486 2.0 trunk cards are to be used in the same node as the ITG Trunk 2.1 card).

To summarise, ITG Trunk will support the following multi card node configurations :

Mixed 486 8 port and Pentium 24 port H/W running at minimum ITG2.8.24 and ITG2.24.24 respectively with Media Card running ITG Trunk 2.1 release 2.32.25C s/w.

3 ITG Trunk 2.1 Card Application Software

3.1 Coding Convention

The application software version numbers on ITG Trunk 2.1 are coded in the form:

ITG2.32.yyzz

32 refers to the port capacity of the Media Card

yy is a numeral referring to the software release number (e.g. yy = **25** ... Appl. S/W Release 25)

zz is a minor release identifier to be used while the S/W is in beta trial.

3.2 New Feature Content

A number of problem resolutions have required the addition of new Command Line Interface commands (from the ITG Admin Shell) which are detailed below.

3.2.1 Name change of prompt

The ITG> displayed is no longer displayed on log in. From release 2.32.25C, the prompt displayed will be IPT>. Note that there will be a mismatch between some of the documentation and the the actual prompt displayed

3.2.2 *itgCardShow* command

The *itgCardShow* command includes a number of new parameters for MP12961, MP13102, MP14386, MP15935, integrated from the 2.x.25 content.

```
-> itgCardShow
Index      : 1
Type       : ITG2
Role       : Leader
Leader IP   : 47.85.2.94
Card IP     : 47.85.2.92
RTP Port Range : 2300 Default RangeRange
Card MgntIP: 47.85.2.92
Ldr MgntIP : 47.85.2.92
Card TN    : 4 0 0
Card State : ENBL
Card Mode  : Normal
Codecs     : G729B(default), G729
EC Tail Length: Default 128ms
Dchip IP   : 47.85.2.92
Dch Num    : 5
Dch On Card: YES (version 3.1)
Dch Status : ENBL
Protocol   : SL1
```

```
initBchNum : 1
esn5Prefix : |100|
lnPci stat : 10 Mbps (Carrier OK)
lnPci set to Auto-Negotiate Speed and Duplex Settings
lnlsa stat : Carrier OK
```

3.2.3 rtp Port Settings:

Ported fix for PRS MP15935. This parameter details what port range is used by ITG Trunk for RTP packets being sent across the IP network. Some routers have the ability to perform header compression on RTP packets which can result in bandwidth savings across a narrowband WAN link. This header compression is only provided by the router if the packet is a valid RTP packet and if the destination IP Socket is within the port range 16384 upwards. Pre ITG2.xx.25 Rls S/W ITG only uses RTP port range 2300 to 2350 and therefore RTP packets to/from ITG Trunk will never be compressed. Commands have been included in ITG2.xx.25 S/W to allow ITG Trunk to use port numbers within the compression range or to continue to use the (default) 2300 port range. Two new CLI commands have been included to activate this feature

rtpPortCompress - Set RTP packets to originated from ports 17300 to 17350.

rtpPortNonCompress - Set RTP packets to originate from ports 2300 (Default)

These commands take effect immediately (card will need to be disabled to run this command). The card will retain the configured setting even if powered down.

Sniffer can be used to check RTP packets originating port numbers with both compression range on and off.

3.2.4 DSP Error Handling (ITG0303 / ITG0309):

Ported in fix for MP15339. If a DSP resource fails to respond to the periodic status polling message on the ITG2.xx.25 load, the device will be reset and the following actions will be taken:

- SNMP alarm generated.
- A DSP error counter value is incremented.
- If the error count has exceeded the pre-defined max. number of allowable DSP errors (this value is currently fixed at 5) since last power-up, the DSP will be taken Out of Service. This Out of Service condition will be maintained even after a power-down event.
- If the error threshold has not been exceeded, any active voice calls on the DSP will be reconnected (such that there maybe a brief loss of speech path as the reset and restore operation is occurring).
- Any active fax calls on the DSP will be released.
- If a second DSP failure occurs within 5 seconds of the first, all channels will be auto-released, the DSP reloaded and made available for new calls.

Two new CLI commands have been included to allow interrogation of the cards DSP status:
dspFatalErrorCountShow Details the number of fatal errors per DSP since last boot-up.

dspFatalErrorCountClear <DSP num> Clears the fatal error count for the DSP, and returns the DSP to service.

3.3 Fixed/Replied Problems

The following PRs have been resolved in 2.32.25C.

ITG 2.1 Application

PRS ID	Priority – Status	Description
MP17621	P2-S	Loss of Speech if M1-BCM call is transferred back to the M1.
MP17620	P2-S	1-way speech path if call between MC-BCM when using i2004 sets
MP17437	P2-S	Incorrect M1 law received on switch power up
MP17777	P1-S	1-way speech path from SA to BCM on first call
		Network interface problems with a card with Node and Card IPs set to the same address.
		Problems with the changeover from Backup Leader to Leader when the Leader card reboots
		Complete reboot of card when IXP does not respond

3.4 Outstanding Problems

The following are the PRs still in an active state on ITG2.1.

ITG 2.1 Application

PRS ID	Priority – Status	Description
MP18675	P1-1	Current surge when card initially inserted will cause the 5V rail to drop.
MP17797	P3-A	Loss of speech path during CPU switchover
MP17719	P5-O	Faceplate scrolling HEX display
MP17424	P3-A	TOS Field in control packets not set
MP17413	P4-A	Loss of TCP sockets when tearing down calls.
MP17123	P2-A	Media card does not work correctly after switch upgrade
MP16707	P2-A	Noise at start of call
MP16277	P3-A	Multicard traffic – DCH release
MP15279	P3-A	Message waiting lamp not lit over Media Card route
MP13500	P4-A	""SNMP""get""failed"" error when transmitting card prop.
MP18573	P4 - 3	Disconnect LDR E-LAN cable and the 1 st call after this fails.
MP18575	P4 - 4	Cards come up unequipped in single subnet
MP18656	P3 - 2	Cannot make FAX calls between 2.X.23 and 2.32.25

PRS ID	Priority – Status	Description
MP19040	P3 – 3	Cannot place “,” in the site name due to dialing plan table parsing limitation
MP19041	P3 – 2	Card will not reboot if UART control signals not initialised

The following are outstanding issues that do not have PRs associated with them at present.

		Description
		Crosstalk noticed when making a call from a i2004 set and a TDM set
		Issues with multicard testing
		XA-Host DPRAM corruption under heavy traffic.
		Calls cannot be made on certain channels while running a traffic session

3.5 Outstanding Problem Descriptions and Workarounds

ITG 2.1 Application

MP18675	P1-1	Current surge when card initially inserted will cause the 5V rail to drop.
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Description: When the Media Card is plugged into a large system running off an AC power supply the 5V rail on the backplane can drop to lower than 4.5 V which may cause some boards on the same shelf to reset

Workaround: None

Frequency: Very frequent on AC power supplies. Problem does not occur with DC power supplies.

MP17797	P3-A	Loss of speech path during CPU switchover
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Description: When the CPU switches over, existing calls may lose their speech path. All subsequent calls will have speech path.

Workaround: Remake the call.

Frequency: Rare – not duplicated. Being investigated, code to recover speech paths being put in place.

MP17719	P5-A	Faceplate scrolling HEX display
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Description: To be able to distinguish between the different applications running on a MC, the faceplate will describe the functionality of the card. For ITG 2.1, the display should show the role of the card, the application running on the card, the major and minor versions of the application load and any application errors that have occurred. This feature is postponed until a post-GA upissue.

Workaround: N/A

Frequency: N/A

MP17424	P4 – O	TOS Field in control packets not set
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Description: Setting TOS field on control packets is not supported on ITG Trunk for either the MC, Pentium or 486 cards. TOS is set for RTP and QoS packets.

Workaround: None

Frequency: Always

MP17413	P4 - A	Loss of TCP sockets when tearing down calls.
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Description: Under traffic conditions sockets are getting stuck in a FIN_WAIT_2 state, where the sockets cannot be reused. Eventually the card will run out of sockets.

Workaround: Software workaround that will interrogate the state of the sockets and will delete any sockets that are in this FIN_WAIT_2 state.

Frequency: Rare / never under nominal conditions. Up to 10 sockets in 100,000 calls, dependent on traffic levels.

MP16707	P2 – A	Noise at start of call
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Description: When a call is made, a beep is heard at the very start of the call. This occurs because the channel to the DSP is opened before the channel to the backplane is opened. This is more pronounced on a mu-law switch.

Workaround: Software workaround in place where the beep is only evident under heavy traffic conditions as long as all nodes have the same codecs configured

Frequency: Very rare.

MP16277	P3-A	Multicard traffic – DCH release
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Description: Under heavy traffic conditions (~10,000 calls/hr) the DCH on the switch goes out of service after about 3 to 8 hours. This may also be associated to the fact that traffic was run on a CP3 which may not be capable of running this level of traffic.

Workaround: DCH has to be re-enabled on the switch.

Frequency: Rarely

MP15279	P3-A	Message waiting lamp not lit over Media Card route
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Description: Problem occurs when Node A calls Node B and is transferred to a Meridian Mail or CallPilot which resides on another node, Node C. When Node B sends the non call associated message to activate the message waiting lamp to Node C, Node C rejects the message and the message indicator lamp is not activated.

Workaround: None.

Frequency: This does not occur where the Node B switch is loaded with release 25.30 or earlier and was introduced along with release 25.40. This occurs for Pentium ITG 2.0 also.

MP13500	P4 – A	""SNMP""get""failed"" error when transmitting card prop.
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Description: During transmission of card and node properties from OTM / MAT, the above message is sometimes encountered. The properties are however downloaded correctly, so no further action is required.

Workaround: Re-transmit to get rid of error, though properties have been downloaded anyway.

Frequency: Very rare and cannot be duplicated sufficiently to fix.

MP17123	P2 – O	Media card does not work correctly after switch upgrade
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Description: Switch software upgraded and the calls could not be routed over the ITG trunk card. Card was rebooted and left for 10 minutes and then calls could be routed over the ITG trunk. Problem seen on an option 81. It is suspected that it is a X11 S/W issue.

Workaround: Reboot Media Card.

Frequency: Twice on one Tech Trial site, but not reported on other sites or verification. It has not been since reproduced on the problem site.

MP18573	P4 – 3	Disconnect LDR E-LAN cable and the 1 st call after this fails.
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Description: When the LDR E-LAN disconnected, the first call after the disconnect will not work as the card goes into fallback mode. After the first call is made the card will recover from fallback mode and calls can be made again.

Workaround: Make second call.

Frequency: Always.

MP18575	P4 - 4	Cards come up unequipped in single subnet
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Description: If an enabled card is rebooted in a single subnet configuration then the card will come up as unequipped. If the card is disabled before reboot then it comes up OK.

Workaround: Single subnet configuration is not recommended or supported. However it is possible to configure ITG trunk to work in a single subnet environment.

Frequency: Always.

MP18656	P3 - 2	Cannot make FAX calls between 2.X.23 and 2.32.25
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Description: Fax calls cannot be made from 2.X.23 to 2.X.25. Fax calls can work in the other direction.

Workaround: None

Frequency: Always.

MP19040	P3 - 3	Cannot place “,” in the site name due to dialing plan table parsing limitation
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Description: While configuring your system with OTM / MAT, when the site name is being chosen, commas must not be used in the name. While parsing the dialing plan table, when a comma is encountered, the code will recognise this as an end of an entry but while the comma is in the site name it is not and the next entry that the parsing algorithm will see will not be correct format and the parsing will fail.

Workaround: Do not use commas in the site name.

Frequency: Always.

MP19041	P3 - 2	Card will not reboot if UART control signals not initialised
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Description: Reboot a card while the faceplate or backplane COM cable is inserted and also having the cable inserted into a laptop with Windows 2000 running. Also there should be no terminal program running that is connected to this COM port. Under this scenario the card will not boot up and hang with T:20 displayed on the faceplate. Problem is due to the state of the UART signals when faceplate cable plugged into and not initialised.

Workaround: Reboot card with Terminal program running or with faceplate cable plugged out.

Frequency: Only reproduced while using a Dell latitude laptop running Windows 2000. A Dell PC running Windows 2000 or a Dell latitude running Windows 95 does not have this problem. Other PC and laptops have been also used on various sites without any problems.

		Crosstalk noticed when making a call from a i2004 set and a TDM set
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Description: When a call is made from a i2004 set to a TDM set over a trunk, crosstalk can be heard in the call. i2004 to i2004 calls does not experience this problem.

Workaround: None

Frequency: Intermittent. Not happening after Media Card was moved out of 11C Mini expansion cabinet.

		Calls cannot be made on channels while running a traffic session
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Description: During a period of traffic, some of the channels will no longer handle calls. This could be a Switch/PRI problem with the traffic generator as only seen on the development switch and it is also traffic dependent.

Workaround: None

Frequency: Intermittent

		XA-Host DPRAM corruption under heavy traffic
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Description: When a large amount of messages are sent from the Host to the XA, the XA will report that some of the messages are invalid. This due to part of the message getting corrupted.

Workaround: Code workarounds in place where, if the XA/Host recognises that one of the queues is getting corrupted, then it will reset the queues.

Frequency: Very rare.

3.5.1 Other Problems / Limitations

The codec type G729/B is not supported. G729A/B is fully compatible with G729/B and should be used in all cases. The different codecs that are supported on ITG Trunk 2.1 are:

?? G711 A-LAW
?? G711 MU-LAW
?? G729A
?? G729AB
?? G723.1

To eliminate the problem of getting the beep at the start of the call (MP16707), the codecs selected on all nodes should be the same. That is, if a site is configured so that its default codec is G711 and secondary codec is G729 and it is setting up a call with a site that has its default codec set to G729 only, then when a call is setup, there is a higher possibility that a noise will be heard at the start of the call. If this second setup had G711 configured as its secondary codec, then the chances of hearing noise at the start of the call is all but eliminated.

3.5.2 Fax. Tone Detection Configuration:

This is a fix for PRS MP16701 which is integrated from the 2.x.25 changes- false fax. detection on active voice calls which is incorporated from the 2.X.25 changes.

Previous ITG S/W loads have optionally switched to fax. mode on detection of the V.25 Modem Tone or the V.21 Fax. Flags sequence. As the V.25 tone is easily reproducible within the speech band, instances of auto-switchover to fax. and resultant loss of speech path have been reported from the field. The V.21 Flags sequence is not reproducible within the speech-band and so ITG2.xx.25 now only switches to fax. mode on receipt of this sequence.

V.21 Tone detection must be checked within the OTM / MAT configuration tab. for ITG2.xx.25 fax. operation.

3.6 Upgrading to ITG2.32.25C

The application is delivered in the form of an “exec” file. For the 2.32.25C release, the filename is exec2.32.25C. The MC should be upgraded via the normal OTM / MAT interface. Note that because OTM / MAT only displays .mms files by default, the display option in the file selector box needs to be changed.

For release 2.32.25B, file protection was placed on the “exec” file on the /C:/ drive so that the application executable could not be accidentally deleted by a user. This means if the upgrade procedure is called for this, or any subsequent release, the file “exec” will only have read and execute permissions. If we downgrade the card to a version of software prior to 2.32.25B, then the file “exec” will still be write protected but the upgrade command will not be able to modify the file. To change the permissions of the file called the following command from the vxWorks command prompt.

attrib "/C:/exec", "-R"

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